WHAT IS CLAIMED IS:

1. A display device comprising:

a first substrate having a plurality of electron emitters arranged in a matrix;

a second substrate arranged in opposed relation to said first substrate, said second substrate including a phosphor pattern for emitting light by receiving the electron beam released from said electron emitters and a metal thin film for accelerating said electron beam; and

at least a spacer arranged between said first substrate and said second substrate for supporting said first substrate and said second substrate;

wherein said spacer includes a plurality of first sheet-form support members extending in a predetermined direction and a plurality of second sheet-form support members extending in a direction different from said predetermined direction, said first sheet-form support members and said second sheet-form support members being coupled to each other thereby to form spaces each containing at least one of said electron emitters.

2. A display device according to Claim 1,

wherein said first sheet-form support members and said second sheet-form support members are arranged at right angles to each other, and

wherein at least that section of at least one of the spaces formed by said first sheet-form support

members and said second sheet-form support members which is parallel to selected one of said first substrate and said second substrate is rectangular.

3. A display device according to Claim 1,

wherein that section of at least one of the spaces formed by said first sheet-form support members and said second sheet-form support members which is parallel to selected one of said first substrate and said second substrate is triangular.

4. A display device comprising:

a first substrate having a plurality of electron emitters arranged in a matrix;

a second substrate arranged in opposed relation to said first substrate, said second substrate including a phosphor pattern for emitting light by receiving the electron beam released from said electron emitters and a metal thin film for accelerating said electron beam; and

at least a spacer arranged between said first substrate and said second substrate for supporting said first substrate and said second substrate;

wherein said spacer includes a plurality of first sheet-form support members and a plurality of second sheet-form support members extending in a direction perpendicular to said first sheet-form support members, said first sheet-form support members and said second sheet-form support members being combined with each other thereby to form a plurality of

rectangular spaces each having a section parallel to selected one of said first substrate and said second substrate.

5. A display device according to Claim 4,

wherein at least one of said electron emitters is arranged in each of said spaces formed by said first sheet-form support members and said second sheet-form support members.

6. A display device according to Claim 4,

wherein at least one of units each including three of said electron emitters is arranged in each of said spaces formed by said first sheet-form support members and said second sheet-form support members, and said each unit corresponds to a set of red (R), green (G) and blue (B) color sub-pixels.

7. A display device according to Claim 4,

wherein said first sheet-form support members and said second sheet-form support members are coupled integrally with each other by a dielectric material adapted to be molten at temperatures.

8. A display device according to Claim 4,

wherein said first sheet-form support members and said second sheet-form support members are coupled integrally with each other fixedly by a silica film obtained by using an inorganic polymer containing a basic unit of a nitrogen-silicon combination as a starting material.

9. A display device according to Claim 4,

wherein said first sheet-form support members and said second sheet-form support members each include at least one through hole having a diameter of 10 to 50 μm.

10. A display device according to Claim 4,

wherein said first sheet-form support members and said second sheet-form support members are colored in selected one of milk white and other colors.

11. A display device according to Claim 4,

wherein the length of one side of said spacer is selected one of a least common multiple of the pitches of arrangement of at least two of said electron emitters and an integer multiple of said least common multiple.

12. A display device according to Claim 4,

wherein the aspect ratio H/D of said spacer separating said first substrate and said second substrate from each other is in the range of 20:1 to 100:1, where H is the height of said spacer, and D is the thickness of selected one of the bottom portion and the uppermost portion of said spacer.

13. A display device according to Claim 4,

wherein said spacer is formed of glass containing as a main component SiO_2 having a strain point of not lower than 400°C.

14. A display device according to Claim 13,

wherein said glass constituting the material of said spacer is selected one of aluminosilicate glass

and alumino borosilicate glass containing at least one rare earth element selected from Sc, Y, Pr, Nd, Pm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

15. A display device according to Claim 13,

wherein said glass constituting the material of said spacer is at least configured of, by oxide weight percent, 40 to 80 % of SiO_2, 0 to 20 % of B_2O_3, 0 to 20 % of Al_2O_3, 0 to 20 % of alkali metal oxide R_2O, 0 to 20 % of alkali earth metal oxide R'O and 0 to 20 % of rare earth element oxide Ln_2O_3.

16. A display device according to Claim 13,

wherein said glass constituting the material of said spacer is at least configured of, by oxide weight percent, 50 to 80 % of SiO_2, 5 to 12 % of B_2O_3, 1 to 17 % of Al_2O_3, 7 to 15 % of alkali metal oxide R_2O and 5 to 20 % of rare earth element oxide Ln_2O_3.

17. A display device according to Claim 13,

wherein the surface of the glass constituting the material of said spacer is formed with a conductive film having a resistance value of 10^5 to 10^{12} $\Omega/\square$.

18. A display device according to Claim 17,

wherein said conductive film is formed of at least selected one of oxides of tin, titanium and indium.

19. A display device according to Claim 17,

wherein said conductive film is formed by at least selected one of the methods including the sol-gel process, the sputtering method and the CVD process.

20. A display device according to Claim 13, wherein a conductive material is dispersed in the glass constituting the material of said spacer in such an amount that the surface resistance of the glass is 10^5 to 10^{12} Ω/□.

21. A display device according to Claim 20, wherein said conductive material is conductive particulates.

22. A display device according to Claim 20, wherein said conductive particulates are selected one of a metal and a precious metal.

23. A display device according to Claim 20, wherein said conductive particulates include at least selected one of Pt, Ag, Au and Cr.

24. A display device according to Claim 20, wherein said conductive particulates are metal ions.

25. A display device according to Claim 24, wherein said metal ions are transition metal ions.

26. A display device according to Claim 20, wherein said metal ions are at least selected one of Nb, Ti, Sn, Co, Fe and V.

27. A display device according to Claim 20, wherein said conductive particulates are a conductive oxide and composed of a glass base containing 0.1 to 5 weight % of a semiconductor with impurities doped into said conductive oxide.

28. A display device according to Claim 24, wherein said conductive oxide is at least selected one of indium oxide, tin oxide and titanium oxide.

29. A display device according to Claim 12, wherein said spacer is formed of a metal material having the surface thereof formed with an insulating layer having a resistance value of not lower than 10^{13} Ω/□.

30. A display device according to Claim 29, wherein said metal material is a Fe-Ni alloy.

31. A display device according to Claim 29, wherein said insulating layer is formed of at least selected one of a glass material and a mixture of said glass material and a crystalline material.

32. A display device according to Claim 29, wherein said insulating layer is formed by at least selected one of the CVD process and a method of coating the surface of said metal material with a spray and heating and baking the resulting assembly.

33. A display device comprising:

a back electrode including a plurality of scanning electrodes extending in horizontal direction on the screen, a plurality of signal electrodes extending in vertical direction on the screen and a plurality of electron emitters arranged at the crossing points between said plurality of said scanning electrodes and said plurality of said signal electrodes

to emit electrons;

a front substrate arranged in opposed relation to said back electrode and including phosphor elements for emitting light by being irradiated with electrons from said electron emitters; and

a plurality of spacers arranged between said back electrode and said front substrate to form spaces between said back electrode and said front substrate;

wherein said plurality of said spacers are arranged on said scanning electrodes, respectively, and each two spacers arranged on two different ones of said scanning electrodes are coupled to each other by support members thereby form a box-type spacer.

34. A display device according to Claim 33,

wherein one of said scanning electrodes is connected with two rows of said electron emitters.

35. A display device according to Claim 33,

wherein said support member is shorter than the height of said spacer, and the bottom surface of said support member is located at a higher position than the thickness of said scanning electrodes from the bottom surface of said spacer.